(No Model.)

A. W. RASMUSSEN.

PAPER BINDER.

No. 591,372. Patented Oct. 5, 1897.

Fig. 1

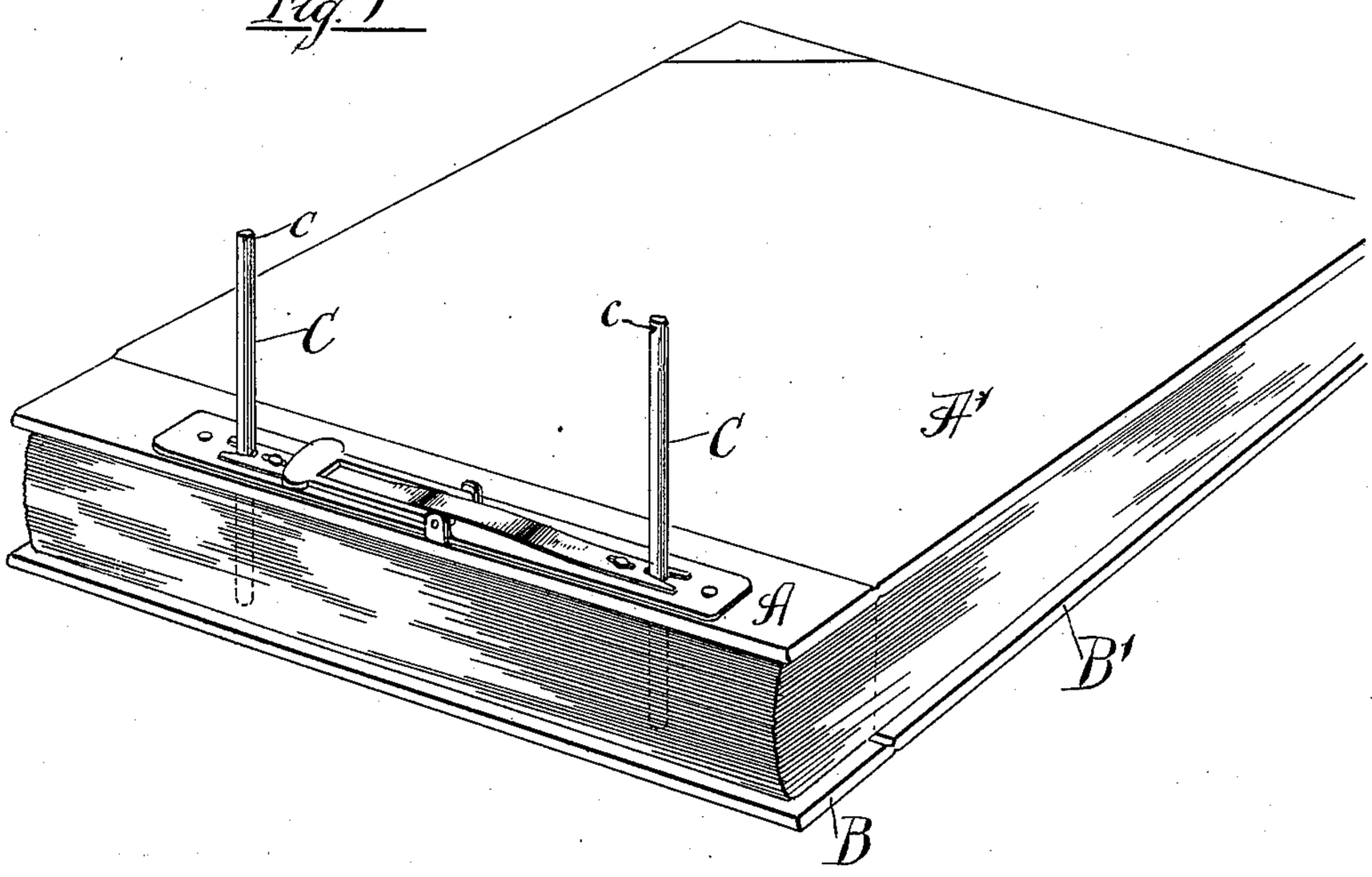


Fig. 2

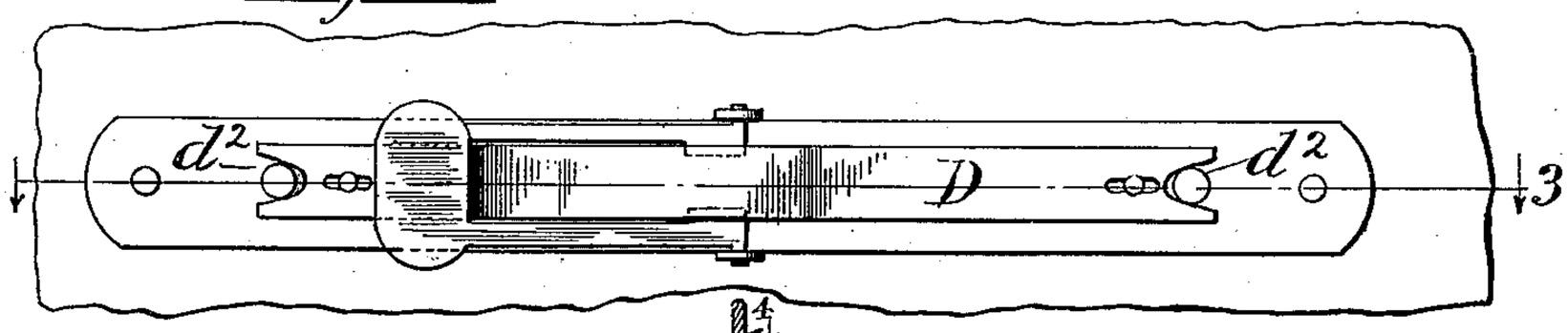
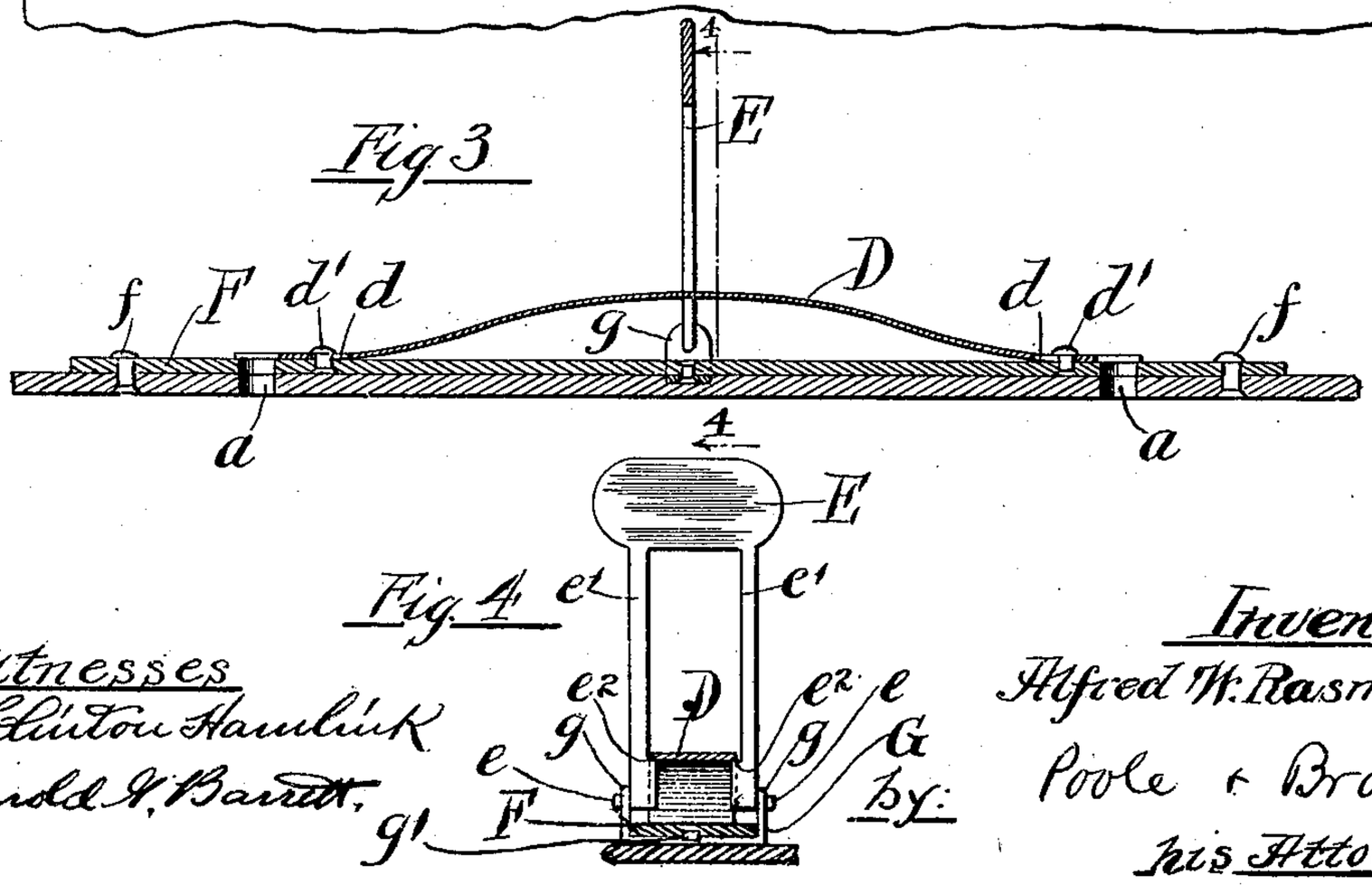


Fig 3



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UNITED STATES PATENT OFFICE.

ALFRED W. RASMUSSEN, OF CHICAGO, ILLINOIS.

PAPER-BINDER.

SPECIFICATION forming part of Letters Patent No. 591,372, dated October 5, 1897.

Application filed November 18, 1896. Serial No. 612,556. (No model.)

To all whom it may concern:

Be it known that I, ALFRED W. RASMUSSEN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Paper-Binders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in temporary or loose-sheet binders of that class which comprise clamping-strips between which the papers are placed, impaling-pins attached to one of said strips and extending through suitable apertures in the other strip, and locking means located on one of the clamping-strips and adapted to engage the impaling-pins to hold the clamping-strips from relative movement.

The invention consists in the matters hereinafter described, and pointed out in the appended claims.

As illustrated in the accompanying drawings, Figure 1 is a perspective view of a binder embodying my invention. Fig. 2 is a top plan view of the locking devices thereof. Fig. 3 is a section of the same, taken on line 3 3 of Fig. 2, with the flexing-lever elevated. Fig. 4 is a transverse section taken on line 4 4 of Fig. 3.

As illustrated in said drawings, A B indicate the upper and lower clamping-strips, between which the edges of the sheets to be bound are placed, said strips having, as shown in the drawings, lids or covers A′ B′ flexibly attached thereto, as common in such structures.

C C indicate impaling-pins, which are secured in the lower strip and pass through apertures *a a*, Fig. 3, in the upper strip A.

The strips A B may be made of metal, hard wood, pasteboard, or the like, and the lids A′ B′ may be made of similar materials, both of said parts being preferably provided with a continuous cloth or leather covering, which forms also the hinge or flexible connection between the strips and covers.

D indicates a flat or leaf spring which is supported upon the strip A between the impaling-pins, and is so constructed that when flat, or nearly so, its ends will press or bear against the said pins, but when flexed at its central part its ends will be free from the said pins, said strip thereby forming a gripping or clamping device which acts by its own resiliency to engage or grip the pins, but which when flexed by power exerted at its central part will be relieved from engagement with the said pins. In order that the said spring may be held in proper relation to the strips, it has sliding connection at its ends with the strip A, and to facilitate the opening or flexure of its central part a device is provided for this purpose, preferably consisting of a hand-lever E, engaged with the central part of the strip and with the said spring.

As a convenient means of constructing the parts a metal strip or base-plate F is attached to the outer surface of the strip A, said plate being preferably secured to the strip by means of rivets *f f*. In connection with the base-plate thus arranged a sliding connection between the ends of the spring and the strip is afforded by means of longitudinal slots *d d* in the end portions of the spring D and studs *d′*, which are secured in the plate F and pass through or engage said slots *d′*.

The lever employed to flex the spring and thereby shorten it to relieve its ends from engagement with the impaling-pins, and which will hereinafter be entitled the "flexing-lever," is provided with a central opening of somewhat greater width than that of the spring D and through which said spring passes, the purpose of this construction being to enable said lever to be folded down flat against the spring at the time the latter is in its expanded position, as clearly seen in Figs. 1 and 2. Said hand-lever is engaged with the under surface of the spring at the inner end of the central opening in said lever, and at its inner end has pivotal engagement with the plate F, so that by swinging the lever into a position at right angles with the strip A the central part of the spring will be thrown away or separated from the strip and the spring thereby flexed in a manner to shorten it or bring its ends together and thus draw them inwardly and away from the impaling-pins. As a desirable and convenient construction of the said flexing-lever it is pivoted at its inner extremity to the plate F, so that a shoulder or shoulders formed at the inner end of the central opening in the lever will bear against

or engage the inner or under surface of the spring when the lever is swung on its pivotal axis in a position at a right angle to the said strip A. In the particular construction illustrated pivotal connection between the lever and the plate F is formed by means of a transverse strip G, which passes beneath the plate F and is bent outwardly at its ends to form lugs *g g*, which afford pivotal bearings for the ends of the lever, said strip G being conveniently attached to the plate F by the rivet *g'* or other convenient attaching means.

The pivotal connection between the lever E and the lugs *g g* is conveniently formed by means of outwardly-extending pivot-pins *e e*, which pass through bearing-apertures in the lugs *g g*.

As a convenient means of constructing the lever E the same is shown as cut from sheet metal and as being made of U form, with its side portions or arms *e' e'* extending at opposite sides of the spring D and having the pivot-pins *e* at the extremities thereof, suitable shoulders or engaging surfaces e^2 e^2 for contact with the inner surface of the spring being formed by means of inwardly-projecting parts or offsets at the end portions of the arms e^2 e^2 of the lever. This construction greatly facilitates the making and assembling of the parts for the reason that the pivot-pins *e* can be easily inserted in their bearings by springing together the arms of the lever E before the spring D is inserted between said arms.

To afford suitable engagement of the ends of the spring D with the impaling-pins, said ends of the spring are provided with notches d^2 d^2, adapted to receive said pins, said notches being made of V shape, so as to secure a better clamping action on the pins than would be afforded by the rounded surfaces on the notches.

In order to prevent the entire disconnection of the strip A from the impaling-pins in cases where the said strip is brought near the outer ends of the pins by the thickness of the mass of papers between the strips, said pins are preferably provided with notches *c c*, adapted to be engaged by the ends of the spring in an obvious manner.

In placing papers within the binder constructed as described the spring D is first flexed by throwing the flexing-lever upwardly and the strip A then removed from the impaling-pins. The papers to be filed, being properly perforated, are then placed upon the impaling-pins and the strip then replaced thereon and slipped downwardly until in contact with the papers beneath it. The upper end of the flexing-lever is then thrust laterally, thereby allowing the flexed spring to straighten, with the effect of forcing the ends thereof against the impaling-pins. Obviously the lateral pressure of the ends of the spring on the pins will be very great owing to the fact that the spring is, when extended, nearly flat. It will be observed, moreover, that the strip A will be held from movement on the impaling-pins not only by engagement of the spring itself therewith, but by the frictional engagement with the outer sides of the apertures *a* in the strip and in the base-plate F, the necessary slight elasticity in the pins obviously resulting in their being pressed against the sides of said apertures in the manner stated.

The locking or clamping devices described affords an exceedingly simple, cheap, easily-constructed, and easily-operated device for holding the clamping-strips A and B in flexed relation to each other.

I claim as my invention—

1. A paper-binder comprising clamping-strips, two impaling-pins, a flat spring mounted on one of the clamping-strips and engaging at its ends when extended said impaling-pins, a bifurcated lever, oppositely-extending trunnions on the inner ends of the arms of said lever adapted to engage apertures in upwardly-extending parallel bearing-studs on said clamping-strip, and a shoulder on said lever adapted to engage said spring between its ends, said lever being inserted in place by pressing the arms together so that the trunnions thereof will enter the apertures in said studs from the inside thereof and being held in place by the resiliency of said arms.

2. A paper-binder comprising clamping-strips, two impaling-pins and a locking device mounted on one of the clamping-strips, said locking device consisting of a base-plate which is provided with apertures for the passage of the impaling-pins, a single leaf-spring having sliding engagement with said base-plate and adapted to engage at its ends, when extended, said impaling-pins, means for guiding said spring comprising outwardly-extending studs on said base-plate adapted to engage slots adjacent to the ends of the spring, a bifurcated lever provided on the outer ends of the arms thereof with oppositely-extending trunnions adapted to engage apertures in outwardly-extending parallel studs on said base-plate and provided with a shoulder adapted to engage the spring between its ends said lever being inserted in place by pressing the arms together so that the trunnions thereof will enter the apertures in said bearing-studs from the inside thereof and being held in place by the resiliency of said arms.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 14th day of November, A. D. 1896.

ALFRED W. RASMUSSEN.

Witnesses:
H. C. SMITH,
NILS W. ALRON.