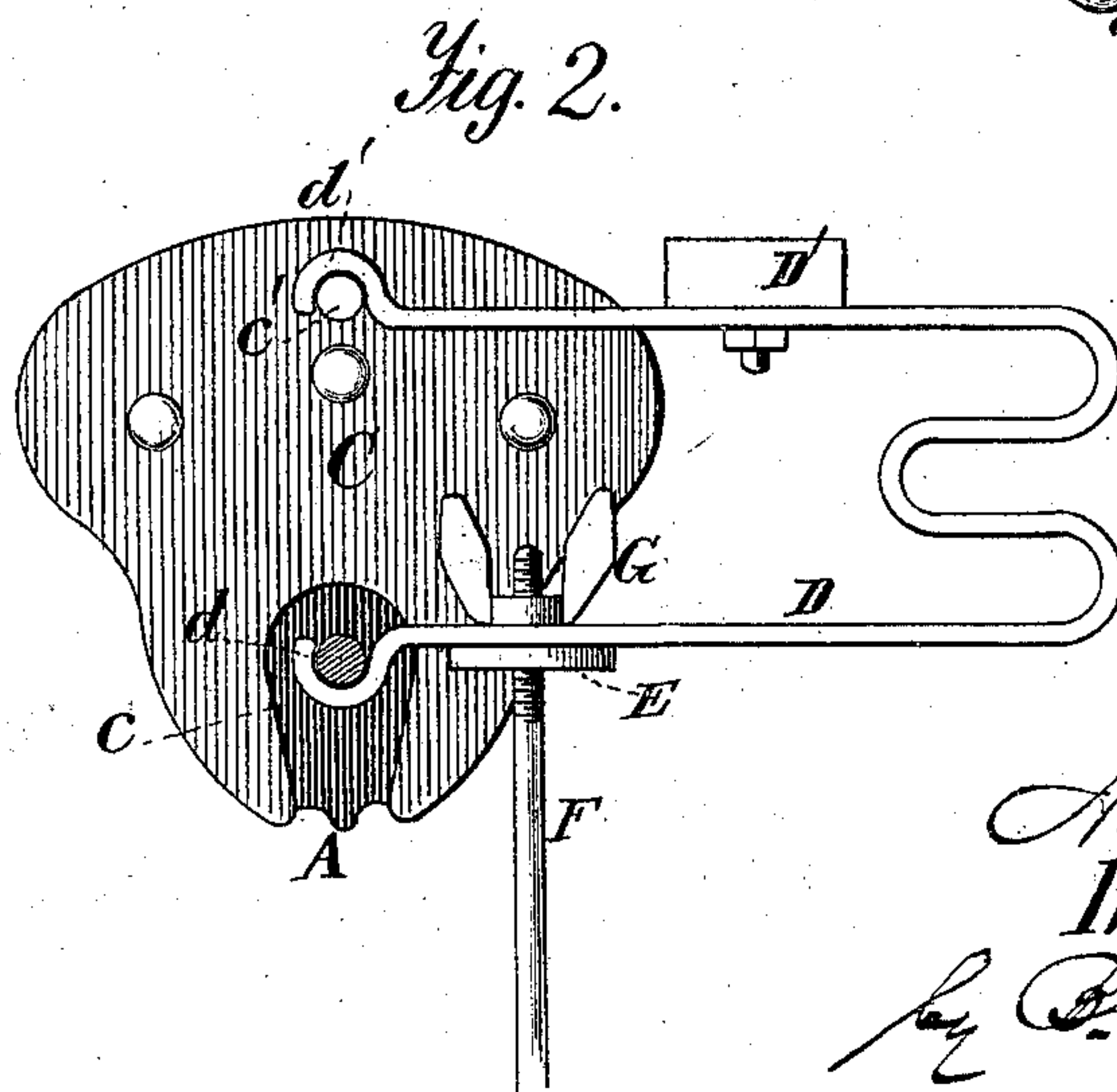
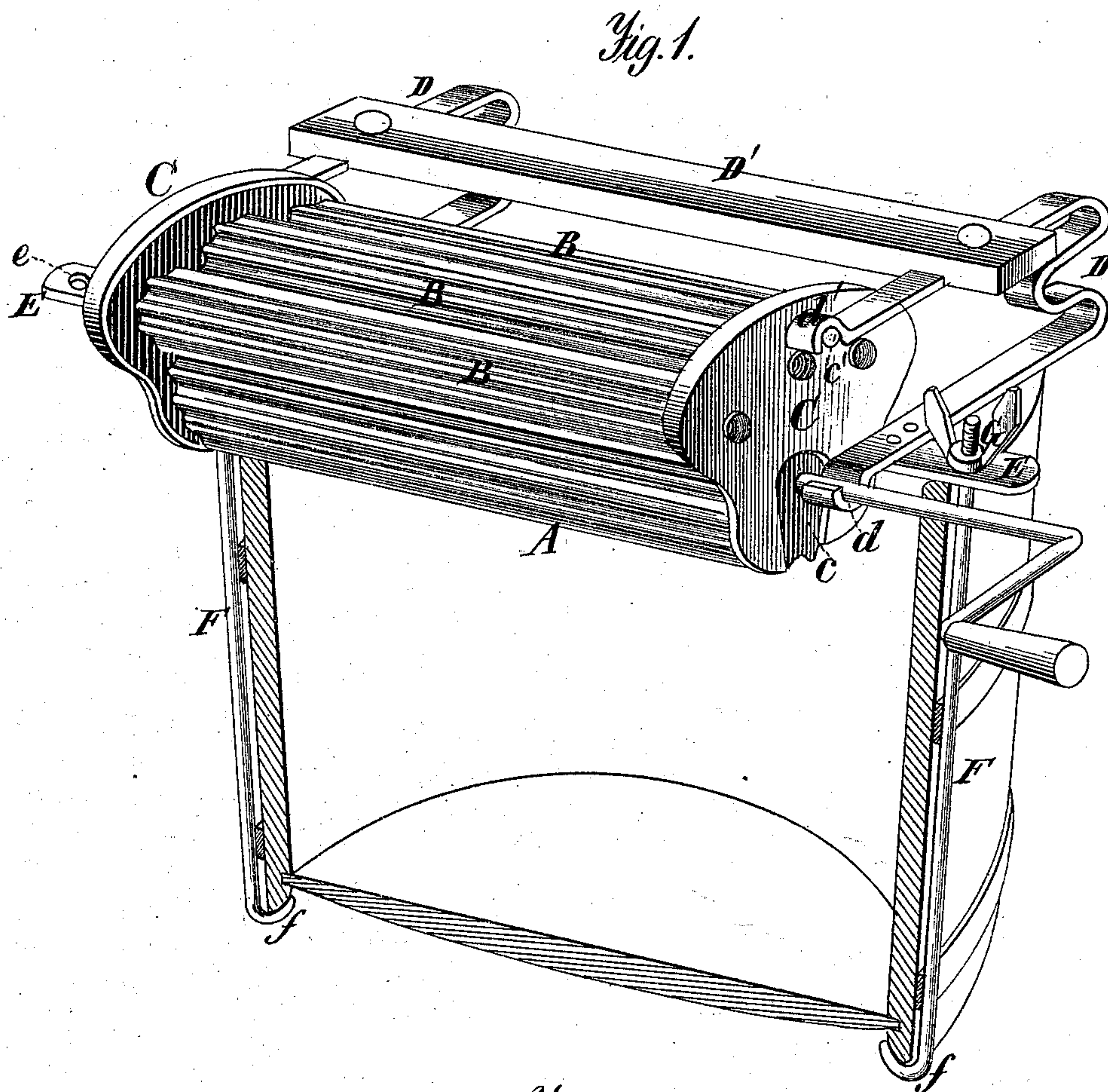


N. S. ANDREWS.
Washing-Machines.

No. 150,506.

Patented May 5, 1874.



Witnesses.
A. Ruppert,
H. E. Drimmer

N. S. Andrews
Inventor.
By P. C. C. C. C.
his Atty

UNITED STATES PATENT OFFICE.

NATHANIEL S. ANDREWS, OF MAQUOKETA, IOWA.

IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **150,506**, dated May 5, 1874; application filed February 7, 1874.

To all whom it may concern:

Be it known that I, NATHANIEL S. ANDREWS, of Maquoketa, in the county of Jackson and State of Iowa, have invented certain Improvements in Washing-Machines, of which the following is a specification:

This invention relates to that class of washing-machines in which the soiled clothes or fabrics are cleansed by the rubbing and pressing action of fluted rollers carried in a framework capable of attachment to an ordinary wash-tub. My improvement consists in a peculiar adaptation of a pair of connected springs, in connection with end plates, for the several purposes of holding the rollers in proper position, of pressing the large yielding roller toward the smaller fixed rollers, and of forming bearings for the journals of the yielding roller.

Figure 1 is a perspective view of my improved washing-machine, showing it fastened to a wash-tub. Fig. 2 is an end view thereof.

The same letters of reference are used in both figures in the designation of identical parts.

The rubbing and pressing mechanism consists of a large yielding roller, A, and three smaller rollers, B, arching over the former, and turning in fixed bearings in the end plates C. Vertical and wide slots *c* are formed in the lower end of these plates, which admit the journals of the large yielding roller, and afford plenty of room for both vertical and lateral play thereof. The several rollers are fluted, the grooves being quite wide and rounded, while the ridges are correspondingly narrow—a construction which is of importance, for the reason that buttons may safely pass through the rollers without danger of being broken. The protruding journals of the large yielding roller rest and turn in the hooked ends *d* of the springs D D, which are connected by a stringer or bar, D', and embrace the plates C at opposite ends of the rollers. The form of the springs is best illustrated in Fig. 2, by referring to which it will be observed that in the bend a return curve is formed, for the purpose of giving to it the necessary strength and quickness of action. The upper legs, parallel to the lower ones, also terminate in hooked ends *d'*, ar-

ranged inversely to the lower ones, and hooking over projecting studs *c'* on the upper portion of the respective end plates C. The distance between the legs of these springs, when in their normal condition, is somewhat less than that between the studs *c'* and the journals of roller A, so that the latter will always be pressed up against the other rollers by the stress of the springs. A laterally-projecting bar, E, is firmly secured to the lower leg of each spring D, and is to serve as a means by which the machine may be properly supported on the edge of a wash-tub. These bars or arms are provided with one or a series of holes, *e*, through which the screw-threaded upper end of bolts F can be passed. The bolts mentioned serve as ties for securing the machine to a tub, in the manner shown in Fig. 1. They terminate at their lower ends in hooks *f*, for hooking under the lower edge of the tub, and are provided with thumb-nuts G for clamping the bars E to the top edge of the tub. One of the journals of roller A is suitably elongated to receive a crank, as shown.

I do not propose to claim, broadly, the use of connected springs for the purposes of forming bearings for at least one of a pair of rollers, and pressing them toward each other, as I am aware that wringers have been constructed heretofore in this manner. My invention is distinguished from this, in that I adapt such use of the springs to a washing-machine with a plurality of rubbing-rollers turning in bearings in end plates, by causing one arm or leg of the springs to act on projecting studs on said end plates.

What I claim as my invention, and desire to secure by Letters Patent, is—

The yielding roller A, a plurality of rubbing-rollers, B, and end plates C *c*, having projecting studs *c'*, in combination with the connected pair of springs D D D', the legs of which terminate in hook ends *d d'*, all substantially as and for the purposes specified.

In testimony whereof I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

N. S. ANDREWS.

Witnesses:

W. A. OVERING,
JAS. OVERING.