

C. & G. M. STEVENS.

Fog Alarms.

No. 141,396.

Patented July 29, 1873.

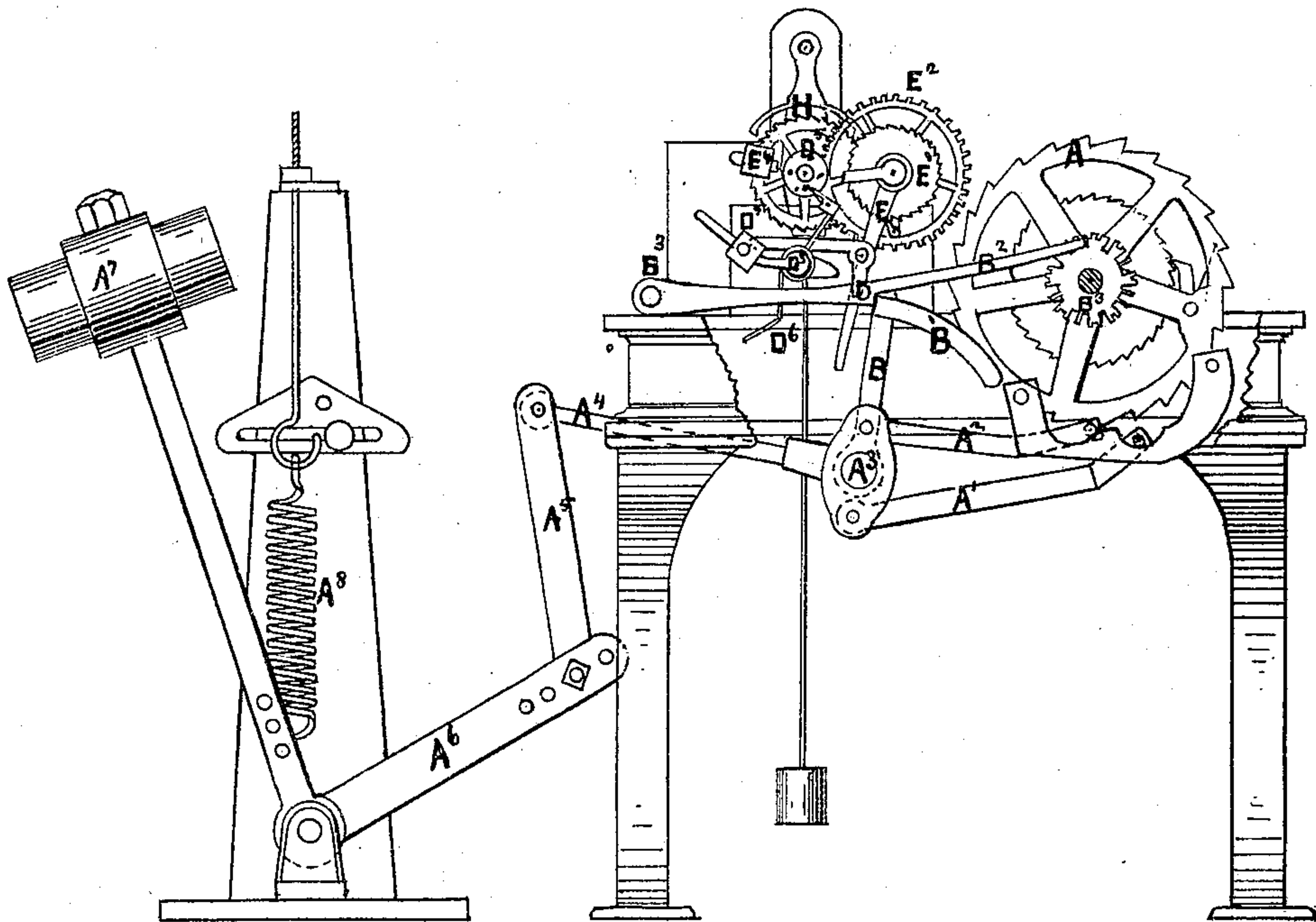


Fig. 1

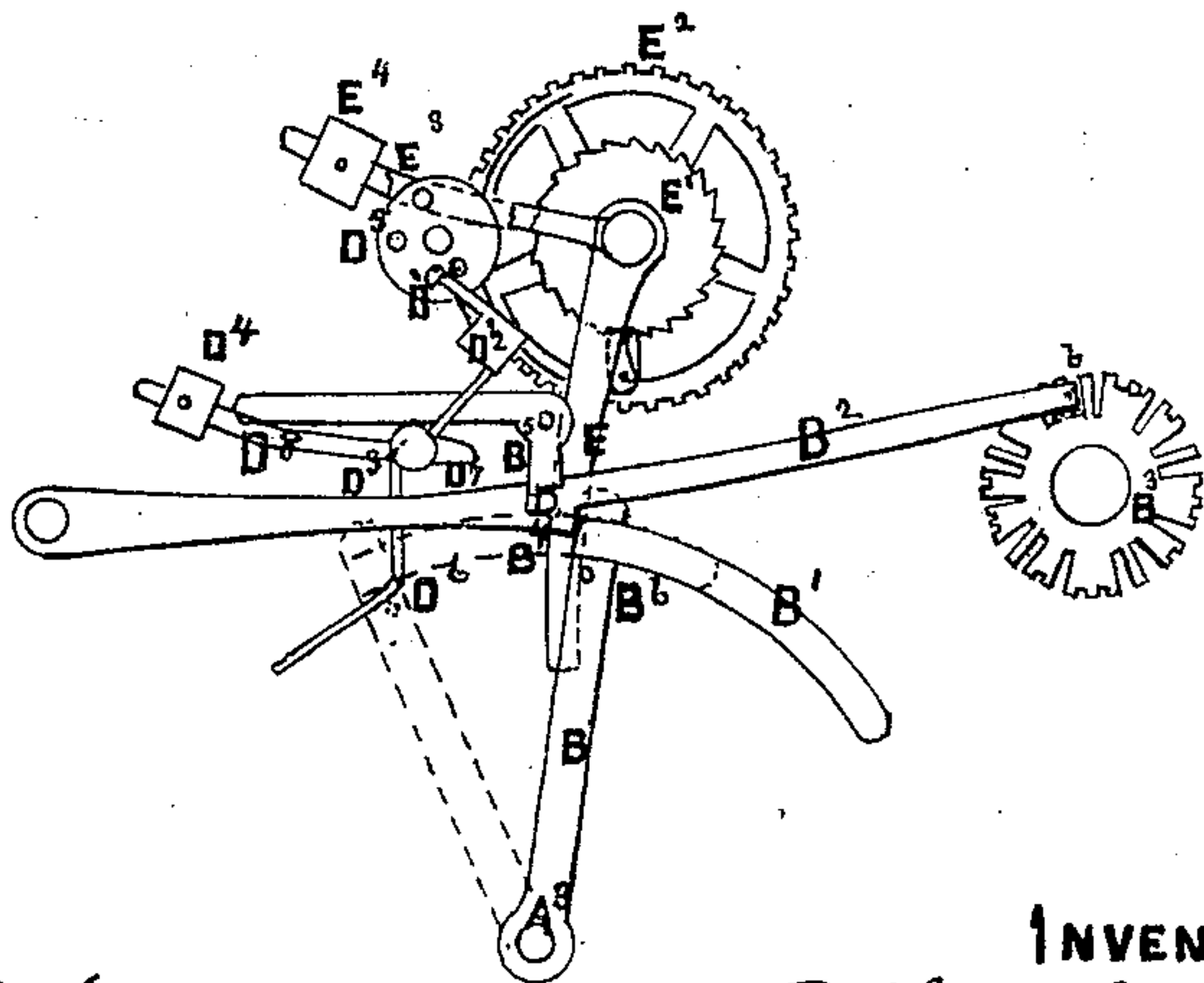


Fig. 2

WITNESSES

Frank H. Parker
Chas. J. Bateman

INVENTORS

Collins Stevens
George M. Stevens
per William Edson

UNITED STATES PATENT OFFICE.

COLLINS STEVENS AND GEORGE M. STEVENS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN FOG-ALARMS.

Specification forming part of Letters Patent No. **141,396**, dated July 29, 1873; application filed March 27, 1872.

To all whom it may concern:

Be it known that we, COLLINS STEVENS and GEORGE M. STEVENS, all of Boston, in the county of Suffolk and State of Massachusetts, have invented a certain new and useful Fog-Signal, of which the following is a specification:

The nature of our invention consists in combining with the striking device of a fog-signal an improved let-off and timing device. By means of the let-off a series of blows may be struck at regular intervals. The intervals, being timed by a pendulum-escapement, are precise. By means of the count-wheel the continuous series of blows may be divided into a series having irregular intervals. Thus the instrument may strike one blow; then, after a short interval, strike two blows in succession, and after another interval, strike three blows, thus indicating the number one hundred and twenty-three.

If the count-wheel is omitted altogether, then the intervals between the blows may be of any desired length, and all equal, or each interval in a series may be different.

A more definite understanding may be had of this device by inspection of the following description and accompanying drawings.

Figure 1 represents an elevation of our machine, part of the frame being cut away to show more clearly the operation of the parts. Fig. 2 is an elevation of a part of the detail of our invention, showing the let-off more particularly.

The notched wheel A, Fig. 1, is to be driven by a strong spring or heavy weight. A³ is a rocker-shaft, having arms A⁴ and B. The rocker-shaft A³ has attached to it a cross-head, as shown in Fig. 1, at the ends of which the pawls A² and A¹ are attached. These two pawls are so guided as to serve as a kind of an escapement for the wheel A. The hammer A⁷, acting through the bent arm A⁶, link A⁵, and rocker-arm A⁴, serves, in connection with the spring A⁸, as a balance for the escapement, the pressure applied to the wheel A being sufficient to keep the hammer A⁷ in motion—that is, to cause it to strike, this device being known as the crane-striker. This striking would continue until the machine run down if it were not for the stop device, which we will pro-

ceed to describe. B³ is a disk attached to the shaft of the wheel A, and revolving with the wheel. This disk B³ has its periphery cut into a series of notches, all the notches being equal in width at the periphery, but one set being much deeper than the other. This disk B³ is attached to its shaft by a friction connection, so that when the end of the lever B² is in contact with any of the notches, large or small, it may hold the disk from revolving and allow the general works to go on. By means of the short notches in the disk B³ it is held by the lever B², when without these it would continue to turn with the main shaft, and then the intervals and number of strokes of the hammer would be interfered with; in other words, the friction of the short notches is to retard the motion of the disk, so that the time of the hammer strokes shall be properly regulated. The end of the lever B² is bent at right angles at b, Fig. 2, the bent part resting in one of the notches of the disk B³. When it rests in a deep notch it allows the lever B² to fall so low that the shoulder B⁴ will lock into the arm B¹ of the rocker-shaft A³, and thus stop the motion of the hammer; but the continuous pressure of the hammer would throw up the lever B², since the shoulder B⁴ is somewhat inclined, if it were not for the fact that the bent lever B⁵, acting upon a pin near B⁴ in the lever B², locks it down. D⁴ is a weight attached to an arm of the rocker-shaft D³. A second arm of the rocker-shaft D³ has attached to its extremity a latch, D². This latch D² rests against a pin, D¹, affixed to the frame of the machine, the whole so arranged that so long as the latch D² rests against the pin D¹ the weight D⁴ is suspended, as shown in Fig. 2, but as the disk D⁵ revolves one of the pins in its face will come in contact with the latch D² and push it off from the pin D¹. This will allow the weight D⁴ to drop, which, in its turn, will throw up the cam D⁷ attached to the rocker-shaft D³, and thus throw the end of the bent lever B⁵ away from the pin, near B⁴ and lever B². This will allow the lever B² to be pushed up, which will release the arm B¹ of the rocker-shaft A³, and also release the disk B³. This will set the striking apparatus in motion. The striking motion will continue so long as the lever B² is not allowed to drop; in other

words, until the disk B³ has revolved sufficiently far to present to the bent portion *b* of the lever B² a deep notch. When this deep notch is presented the lever B² drops, so that the shoulder B⁴ catches the arm B¹ and the bent lever B⁵ catches the pin near B⁴, as shown in Fig. 2. Here the striking apparatus remains stationary until the disk D⁵, with its pin, has had time to revolve sufficiently to throw off the latch D², when the motion above described will be repeated. The disk D⁵ is made fast to the escapement-wheel H, Fig. 1, and receives its motion from the spur-wheel E². The spur-wheel E² is made to revolve by the weight E⁴ acting through the lever E³ and the ratchet-wheel E¹. E is a lever, also attached to the ratchet-wheel E¹, and is so arranged, in connection with a pin at B⁶ in the arm B¹, that the forward motion of the arm B¹, which takes place when the hammer makes its backward motion, will cause the ratchet-wheel E¹ to revolve and lift the weight E⁴. Then, upon retreat of the arm B¹, the weight E⁴, acting through the ratchet-wheel E¹ and pawl, will give motion to the escapement device E² H, and consequently to the disk D⁵, the action of which has already been described. The rocker-shaft D³, carrying the lever D⁸, latch D², and cam D⁷, is thrown back into position by the pin B⁶, which, as the arm B¹ moves, contacts with the arm B⁶ extending from the rocker-shaft D³, and throws it around, thus raising the weight D⁴ and causing the latch D² to catch upon the fixed pin D¹. This part of the device will remain in this position until one of the pins of the disk D⁵ throws down the latch D², as has been described.

Our machine will operate as follows: For

some purposes the count-wheel B³ may be left off, in which case the pins in the disk D⁵ govern the striking. This disk in our present machine revolves once per minute, and as it has four pins it will throw off the latch D² at intervals of one-fourth of a minute, and that would be the striking time if the count-disk B³ were left off—that is, if at each motion of the hammer the lever B² were free to fall so as to catch the arm B¹. As the disk D⁵ revolves with a constant velocity it is evident that the timing of the striking could be regulated by the pins in this disk; thus, if five pins were placed in it at equal distances the hammer would strike five times per minute; if six pins, six times, &c.; but if these pins should be placed at varying distances from each other, then the blows of the hammer would take place at varying intervals, so that by arrangement of pins on the disk D⁵ quite a variety of intervals may be obtained. By the combination of the count-wheel B³ with the other parts a great variety of intervals and combinations may be effected.

We claim as our invention—

1. The combination of the time-disk D⁵ with its pins, the latch D², rocker-shaft D³, weight D⁴, cam D⁷, and bent lever B⁵, operating, in connection with the lever B² and arm B¹, as a timing and stopping device for the striker.

2. The combination of the subject-matter of the first claim with the count-wheel B³, operating substantially as described, and for the purpose set forth.

COLLINS STEVENS.
GEORGE M. STEVENS.

Witnesses:

FRANK G. PARKER,
WILLIAM EDSON.