No. 681,519. Patented Aug. 27, 1901.

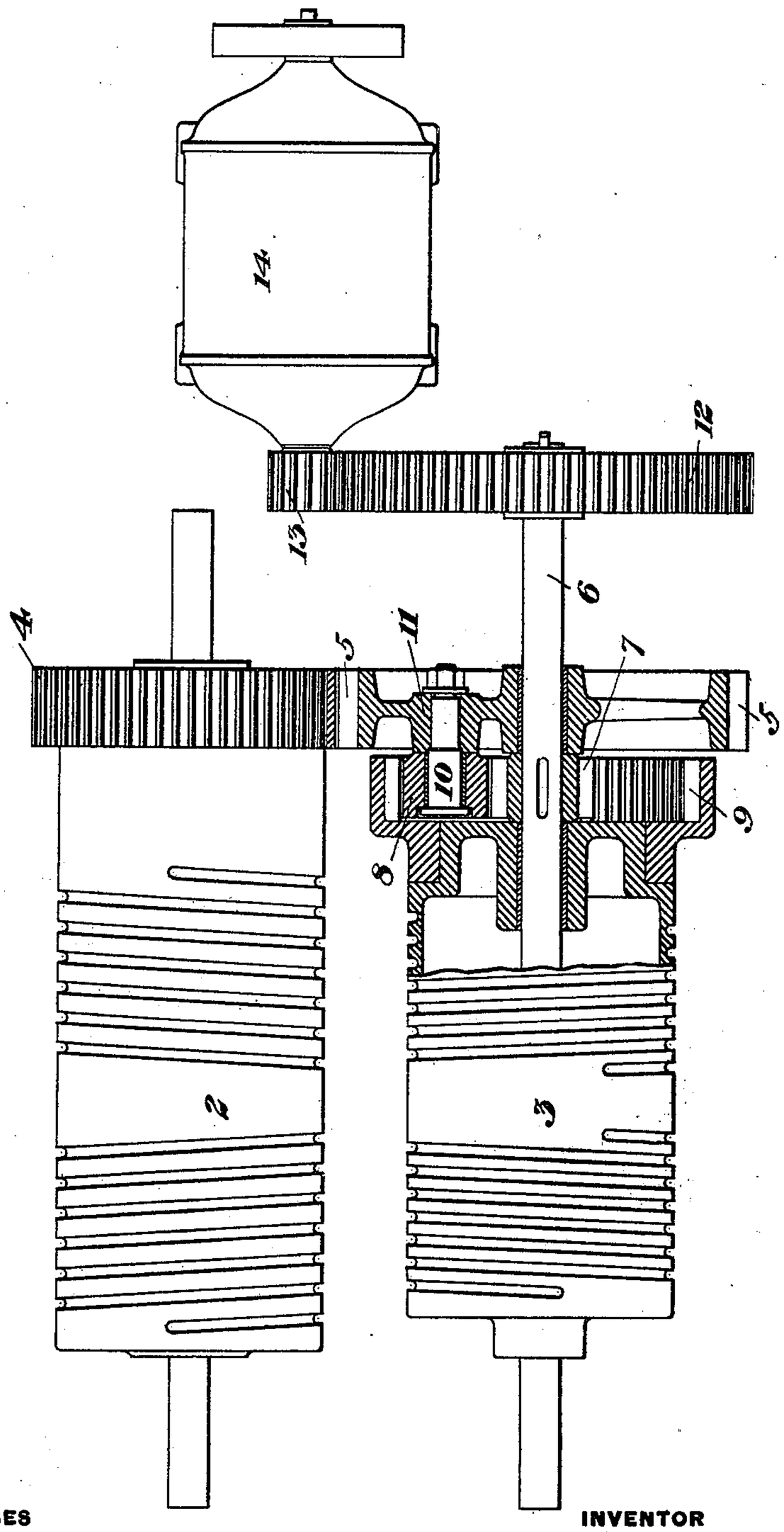
R. H. STEVENS.

SPEED CHANGING MECHANISM.

(Application filed Apr. 13, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



WITNESSES

Warren W. Swartz

L. M. Corwin

INVENTOR

Richard H. Stevens

by Baketel & Symmes

his atty's.

No. 681,519. Patented Aug. 27, 1901.

R. H. STEVENS.

SPEED CHANGING MECHANISM.

(Application filed Apr. 13, 1901.)

(No Model.) 2 Sheets—Sheet 2.

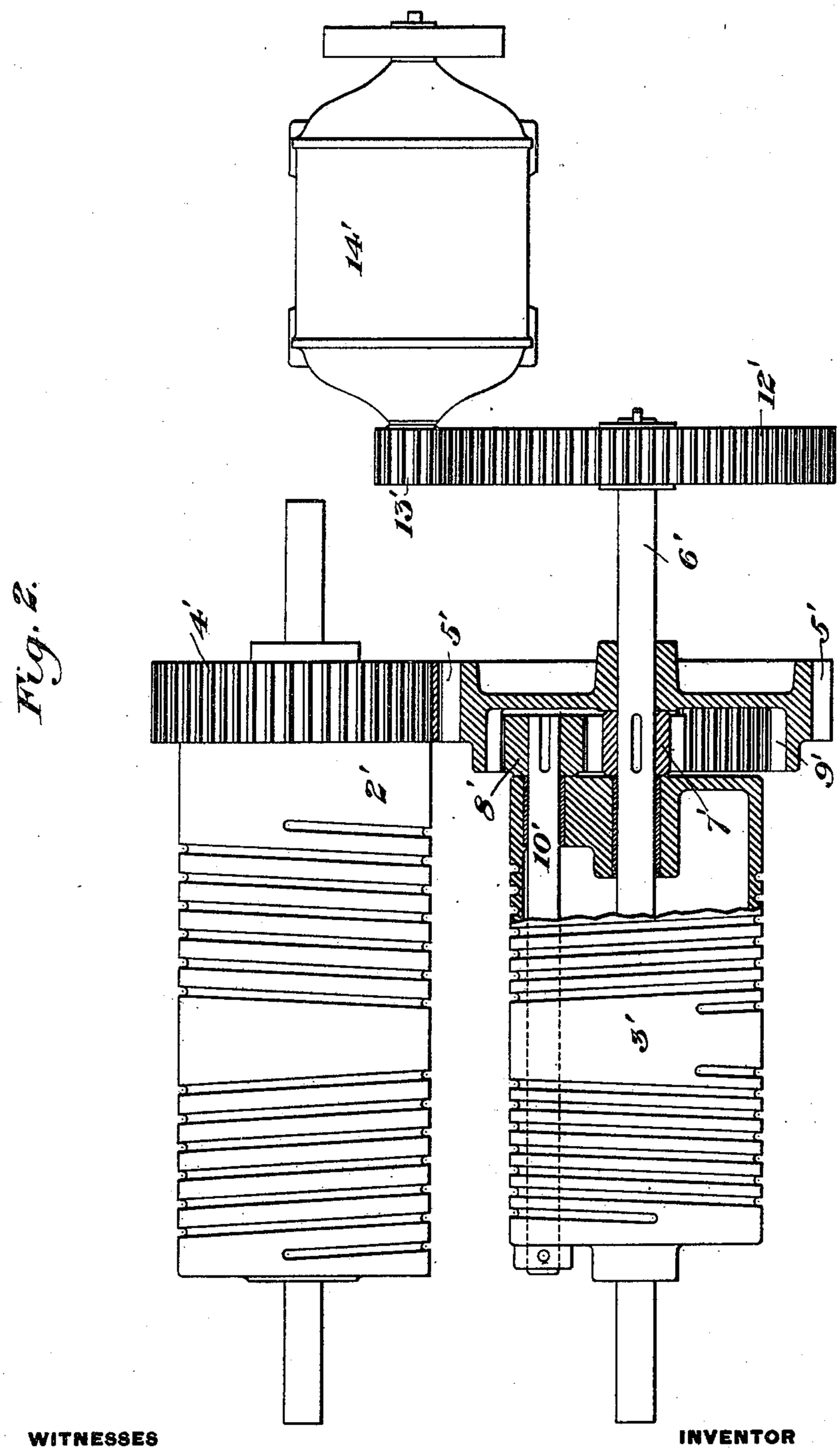


Fig. 2.

WITNESSES

Warren W. Swartz

H. M. Corwin

INVENTOR

Richard H. Stevens

by Dalrymple & Byrnes

his attys.

UNITED STATES PATENT OFFICE.

RICHARD H. STEVENS, OF BRADDOCK, PENNSYLVANIA.

SPEED-CHANGING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 681,519, dated August 27, 1901.

Application filed April 13, 1901. Serial No. 55,720. (No model.)

To all whom it may concern:

Be it known that I, RICHARD H. STEVENS, of Braddock, Allegheny county, Pennsylvania, have invented a new and useful Speed-Changing Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view, partly broken away, showing one form of my improved mechanism; and Fig. 2 is a similar view showing another form of the same.

My invention relates to mechanism for changing the speed of rotary elements—such as hoisting-drums, feed-rollers, &c.—and is especially adapted for use in connection with hoisting apparatus for tongs, ladles, scoops, and similar devices—such as set forth in United States patent to A. C. Dinkey, No. 595,561, dated December 14, 1897—though it may be adapted to many other uses.

The object of the invention is to do away with the necessity for a rotary motor, such as shown in the above-recited patent, and attain the same result with the use of a stationary motor.

In the drawings, referring to the form of Fig. 1, 2 represents a main hoisting-drum, and 3 an auxiliary or winding drum, these drums being preferably mounted in parallelism, as shown. The main or hoisting drum 2 is driven by any suitable connections and carries a toothed wheel 4, intermeshing with toothed wheel 5, which is loosely mounted upon the shaft 6 of the auxiliary drum. The auxiliary drum also rotates loosely about the shaft 6, to which is secured a pinion 7, intermeshing with an idler-pinion 8, which in turn meshes with an internal gear-wheel 9, secured to the auxiliary drum. The idler-pinion is mounted upon stub-shaft 10, secured in an intermediate boss or hub portion 11 of wheel 5. The shaft 6 carries a toothed wheel 12, intermeshing with pinion 13, driven by a stationary electric motor 14. The gear connections between the drums are so proportioned that the auxiliary drum normally rotates at the same speed as the main or hoisting drum when the motor 14 is at rest, and by actuating the motor 14 the speed of the drum 3 may be changed as desired or its direction of rotation reversed. Instead of mounting the idler-pinion upon the toothed wheel it may be mounted upon other parts—for example, upon the auxiliary drum. Thus in Fig. 2 I show the internal gear 9′ as formed integrally with the toothed wheel 5′. The idler-pinion 8′ is mounted upon a shaft 10′, which extends through and is carried in the auxiliary drum 3′. The pinion 7′ is secured to the shaft 6′, as before, and the operation is similar to that of the form of Fig. 1.

The advantages of my invention flow from the capability of driving the auxiliary drum or part at any speed and in either direction within certain limits. The necessity for a rotary motor is done away with and the construction thus simplified and cheapened. This system may be applied to any location where it is desired to change the speed of one rotating element relatively to that of another, and many changes may be made in the form and arrangement of the elements without departing from my invention.

I claim—

1. In speed-changing mechanism, a rotary element, a second rotary element, gearing between them arranged to drive the second rotary element, said gearing including an internal gear, an idler meshing with the internal gear, a pinion on the shaft of the second element intermeshing with the idler, and an independent motor connected to the shaft of the second element, the axes of said elements and gear-wheels being in parallelism; substantially as described.

2. In speed-changing mechanism, a main hoisting-drum, an auxiliary hoisting-drum, gearing between said drums arranged to drive the auxiliary drum, said gearing including an internal gear, an idler meshing with the internal gear, a pinion on the shaft of the auxiliary drum intermeshing with the idler, and an independent motor connected to said auxiliary-drum shaft, the axes of said drums and gear-wheels being in parallelism; substantially as described.

3. In speed-changing mechanism, a main

rotary element, an auxiliary rotary element, gearing between them arranged to drive the second element, said gearing including an internal gear, an idler meshing with the internal gear, a pinion on the shaft of the auxiliary element intermeshing with the idler, and a separate connection for driving the second element, the axes of said elements and gear-wheels being in parallelism; substantially as described.

In testimony whereof I have hereunto set my hand.

RICHARD H. STEVENS.

Witnesses:
H. M. CORWIN,
L. M. REDMAN.